CLAIMS

1. An installation for desalinating or purifying saline or otherwise polluted input water, said installation comprising:

a desalination fractionation installation having a lower, hydrate formation region;

an input water conduit which is arranged to provide input water to said hydrate formation region; and

a gas supply conduit which is arranged to provide hydrate-forming gas to said hydrate formation region;

said installation further comprising a hydrate dissociation region disposed at an upper portion of said installation and in fluid communication with said hydrate formation region, and wherein said hydrate dissociation region is artificially pressurized; and

wherein the artificial pressurization in the dissociation region and natural pressurization in the hydrate formation region combine to create pressurization suitable for the spontaneous formation of hydrate in the hydrate formation region of the installation.

2. The installation of claim 1, wherein said hydrate dissociation region is artificially pressurized by a pressure balance reservoir system.

3. The installation of claim 2, wherein said pressure balance reservoir system pressurizes a volume of gas so as to exert hydraulic force throughout a volume of fluid in said desalination fractionation installation.

4. The installation of claim 2, wherein said pressure balance reservoir system is located on the upper portion of said dissociation region.

5. The installation of claim 1, further comprising a pump and pressure regulating apparatus which pumps the intake water into the installation at a pressure which is approximately equivalent to the pressure which is artificially maintained in the dissociation region of said installation.

6. The installation of claim 1, wherein said water intake conduit has a water intake apparatus on one end thereof, and wherein said water intake apparatus is positionable at a

pressure depth that is approximately equivalent to the pressure which is artificially maintained in the dissociation region of said installation.

7. The installation of claim 1, wherein said hydrate dissociation region is artificially pressurized by the head of the weight of water contained in the input water conduit.

8. The installation of claim 7, wherein said input water conduit syphons water into the installation creating the artificial pressurization in the dissociation region.

9. An installation for desalinating or purifying saline or otherwise polluted input water, said installation comprising:

a desalination fractionation installation having a lower, hydrate formation region;

an input water conduit which is arranged to provide input water to said hydrate formation region; and

a gas supply conduit which is arranged to provide hydrate-forming gas to said hydrate formation region;

said installation further comprising a hydrate dissociation region disposed at an upper portion of said installation and in fluid communication with said hydrate formation region; and

wherein the input water is at least partially cooled by being passed through said dissociation region in heat exchanging relationship with the dissociation region, whereby heat is absorbed from said input water as hydrate located in the dissociation region dissociates endothermically.

10. The installation of claim 9, wherein said hydrate dissociation region comprises a plurality of cooling segments in heat exchanging relationship with said input water.

11. The installation of claim 10, wherein said cooling segments are separated by walls which in prevent hydrate from moving laterally from one cooling segment to another.

12. The installation of claim 10, wherein said cooling segments are in fluid communication with the hydrate formation region.

13. The installation of claim 10, wherein said input water is carried in a heat exchanging apparatus which extends laterally across said plurality of cooling segments.

14. The installation of claim 13, wherein said input water becomes progressively cooler as it passes through each cooling segment of said plurality of cooling segments.

15. The installation of claim 14, wherein said input water conduit which is arranged to provide input water to said hydrate formation region after said input water conduit passes through each cooling segment of said plurality of cooling segments.